

Title (en)  
Molecular diagnosis and classification of malignant melanoma

Title (de)  
Molekulare Diagnose und Klassifizierung bösartiger Melanome

Title (fr)  
Diagnostic et classification moléculaires de mélanome malin

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Abstract (en)  
The present invention provides methods for diagnosing and providing a prognosis of melanoma using molecular markers that are overexpressed in melanoma cells. The invention provides kits for diagnosis and prognosis. Also provided are methods to identify compounds that are useful for the treatment or prevention of melanoma and melanoma progression.

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Citation (applicant)  

- CA 114337 A 19080929 - DE WITT JOHN I [US]
- CA 122947 A 19091228 - GORDON WINNE [US]
- US 5093246 A 19920303 - CECH THOMAS R [US], et al
- US 6019944 A 20000201 - BUECHLER KENNETH F [US]
- US 4452720 A 19840605 - HARADA TOSHIAKI [JP], et al
- US 5227487 A 19930713 - HAUGLAND RICHARD P [US], et al
- US 5543295 A 19960806 - BRONSTEIN IRENA Y [US], et al
- US 6008379 A 19991228 - BENSON SCOTT CONRAD [US], et al
- US 5750409 A 19980512 - HERRMANN RUPERT [DE], et al
- US 5066580 A 19911119 - LEE LINDA [US]
- US 4439356 A 19840327 - KHANNA PYARE [US], et al
- US 6080852 A 20000627 - LEE LINDA [US], et al
- US 6025505 A 20000215 - LEE LINDA G [US], et al
- US 5936087 A 19990810 - BENSON SCOTT C [US], et al
- US 5010175 A 19910423 - RUTTER WILLIAM J [US], et al
- WO 9119735 A1 19911226 - BARTLETT PAUL A [US], et al
- WO 9320242 A1 19931014 - SCRIPPS RESEARCH INST [US], et al
- WO 9200091 A1 19920109 - BIOLIGAND INC [US]
- US 5288514 A 19940222 - ELLMAN JONATHAN A [US]
- US 5539083 A 19960723 - COOK PHILLIP D [US], et al
- US 9610287 W 19960613
- US 5593853 A 19970114 - CHEN HAO [US], et al
- US 5569588 A 19961029 - ASHBY MATTHEW [US], et al
- US 5549974 A 19960827 - HOLMES CHRISTOPHER P [US]
- US 5525735 A 19960611 - GALLOP MARK A [US], et al
- US 5519134 A 19960521 - ACEVEDO OSCAR L [US], et al
- US 5506337 A 19960409 - SUMMERTON JAMES E [US], et al
- US 2006019912 A1 20060126 - BURKOTH TIMOTHY S [US], et al
- US 2006014289 A1 20060119 - AHMADIAN MOHAMMAD [US], et al
- US 2005239687 A1 20051027 - DIVITA GILLES [FR], et al
- US 2005222064 A1 20051006 - VARGESE CHANDRA [US], et al
- US 2004204377 A1 20041014 - RANA TARIQ M [US]
- WO 03047518 A2 20030612 - SALUS THERAPEUTICS INC [US], et al
- WO 03046185 A1 20030605 - SALUS THERAPEUTICS [US]
- US 6447796 B1 20020910 - VOOK NOELLE CHRISTINE [US], et al
- US 2002130430 A1 20020919 - CASTOR TREVOR PERCIVAL [US]
- WO 0053722 A2 20000914 - PHOGEN LIMITED [GB], et al
- KASPER ET AL.: "Harrison's Principles of Internal Medicine 16th ed.", 2005
- KASPER, ET AL.: "Harrison's Principles of Internal Medicine 16th ed.", 2005
- LIEBERMAN, PHARMACEUTICAL DOSAGE FORMS, vol. 1-3, 1992
- LLOYD, THE ART, SCIENCE AND TECHNOLOGY OF PHARMACEUTICAL COMPOUNDING, 1999
- PICKAR, DOSAGE CALCULATIONS, 1999
- REMINGTON: "The Science and Practice of Pharmacy, 20th Edition," 2003, LIPPINCOTT, WILLIAMS & WILKINS
- SMITH; WATERMAN, ADV. APPL. MATH., vol. 2, 1981, pages 482
- NEEDLEMAN; WUNSCH, J. MOL. BIOL., vol. 48, 1970, pages 443
- PEARSON; LIPMAN, PROC. NAT'L. ACAD. SCI. USA, vol. 85, 1988, pages 2444
- AUSUBEL ET AL.: "Current Protocols in Molecular Biology", 1987, WILEY INTERSCIENCE
- ALTSCHUL ET AL., NUC. ACIDS RES., vol. 25, 1977, pages 3389 - 3402

- ALTSCHUL ET AL., J. MOL. BIOL., vol. 215, 1990, pages 403 - 410
- HENIKOFF; HENIKOFF, PROC. NATL. ACAD. SCI. USA, vol. 89, 1989, pages 10915
- BATZER ET AL., NUCLEIC ACID RES., vol. 19, 1991, pages 5081
- OHTSUKA ET AL., J. LIOL. CHEM., vol. 260, 1985, pages 2605 - 2608
- ROSSOLINI ET AL., MOL. CELL. PROBES, vol. 8, 1994, pages 91 - 98
- CREIGHTON, PROTEINS, 1984
- TIJSSEN: "Overview of principles of hybridization and the strategy of nucleic acid assays", TECHNIQUES IN BIOCHEMISTRY AND MOLECULAR BIOLOGY--HYBRIDIZATION WITH NUCLEIC PROBES, 1993
- "Current Protocols in Molecular Biology"
- INNIS ET AL.: "PCR Protocols, A Guide to Methods and Applications", 1990, ACADEMIC PRESS, INC.
- "Fundamental Immunology", 1993
- MCCAFFERTY ET AL., NATURE, vol. 348, 1990, pages 552 - 554
- FARHANG-FALLAH, J. ET AL., J. BIOL. CHEM., vol. 275, 2000, pages 40492 - 40497
- HARLOW; LANE: "Antibodies, A Laboratory Manual", 1988
- PRICE; NEWMAN: "Grove's Dictionaries", 1997, article "Principles and Practice of Immunoassay"
- GOSLING: "Immunoassays: A Practical Approach", 2000, OXFORD UNIVERSITY PRESS
- SELF ET AL., CURR. OPIN. BIOTECHNOL., vol. 7, 1996, pages 60 - 65
- SCHMALZING ET AL., ELECTROPHORESIS, vol. 18, 1997, pages 2184 - 93
- BAO, J. CHROMATOGR. B. BIOMED. SCI., vol. 699, 1997, pages 463 - 80
- RONGEN ET AL., IMMUNOL. METHODS, vol. 204, 1997, pages 105 - 133
- FINK ET AL., J. CLIN. CHEM. CLIN. BIOCHEM., vol. 27, 1989, pages 261 - 276
- ANDERSON, NUCLEIC ACID HYBRIDIZATION, 1999
- HARDIMAN: "Microarrays Methods and Applications: Nuts & Bolts", 2003, DNA PRESS
- BALDI ET AL.: "DNA Microarrays and Gene Expression: From Experiments to Data Analysis and Modeling", 2002, CAMBRIDGE UNIVERSITY PRESS
- SEARS ET AL., BIOTECHNIQUES, vol. 13, 1992, pages 626 - 633
- ZIMMERMAN, METHODS MOL. CELL BIOL., vol. 3, 1992, pages 39 - 42
- FU ET AL., NAT. BIOTECHNOL., vol. 16, 1998, pages 381 - 384
- CHEE ET AL., SCIENCE, vol. 274, 1996, pages 610 - 614
- DRMANAC ET AL., SCIENCE, vol. 260, 1993, pages 1649 - 1652
- DRMANAC ET AL., NAT. BIOTECHNOL., vol. 16, 1998, pages 54 - 58
- NG, J. CELL MOL. MED., vol. 6, 2002, pages 329 - 340
- VASSAUX; GROOT-WASSINK: "In Vivo Noninvasive Imaging for Gene Therapy", J. BIOMEDICINE AND BIOTECHNOLOGY, vol. 2, 2003, pages 92 - 101
- TURNER, J.; SMYTH, P.; FALLON, J.F.; KENNEDY, J.L.; POTKIN, S.G., FIRST BIRN, 2006
- HERHOLZ K ET AL., MOL IMAGING BIOL., vol. 6, no. 4, 2004, pages 239 - 69
- NORDBERG A, LANCET NEUROL., vol. 3, no. 9, 2004, pages 519 - 27
- ZAKZANIS KK ET AL., NEUROPSYCHOL REV., vol. 13, no. 1, 2003, pages 1 - 18
- KUNG MP ET AL., BRAIN RES., vol. 1025, no. 1-2, 2004, pages 98 - 105
- HERHOLZ K, ANN NUCL MED., vol. 17, no. 2, 2003, pages 79 - 89
- FURKA, INT. J. PEPT. PROTO RES., vol. 37, 1991, pages 487 - 493
- HOUGHTON ET AL., NATURE, vol. 354, 1991, pages 84 - 88
- HOBBS ET AL., PNAS USA, vol. 90, 1993, pages 6909 - 6913
- HAGIHARA ET AL., J. AMER. CHEM. SOC., vol. 114, 1992, pages 6568
- HIRSCHMANN ET AL., J. AMER. CHEM. SOC., vol. 114, 1992, pages 9217 - 9218
- CHEN ET AL., J. AMER. CHEM. SOC., vol. 116, 1994, pages 2661
- CHO ET AL., SCIENCE, vol. 261, 1993, pages 1303
- CAMPBELL, J. ORG. CHEM., vol. 59, 1994, pages 658
- VAUGHN, NATURE BIOTECHNOLOGY, vol. 14, no. 3, 1996, pages 309 - 314
- LIANG ET AL., SCIENCE, vol. 274, 1996, pages 1520 - 1522
- BAUM C&EN, 18 January 1993 (1993-01-18), pages 33
- GILMORE ET AL., CURR DRUG DELIVERY, vol. 3, 2006, pages 147 - 5
- PATIL, AAPS JOURNAL, vol. 7, 2005, pages E61 - E77
- GONZALEZ ET AL., BIOCONJUGATE CHEM., vol. 10, 1999, pages 1068 - 1074
- KASHANI-SABET M. ET AL., J CLIN ONCOL, vol. 22, 2004, pages 617 - 623
- KONONEN J. ET AL., NAT MED, vol. 4, 1998, pages 844 - 847
- KASHANI-SABET M. ET AL., J CLIN ONCOL, vol. 20, 2002, pages 1826 - 1831
- BALCH C.M ET AL., J CLIN ONCOL, vol. 19, 2001, pages 3622 - 3634
- BALCH C.M ET AL., J CLIN ONCOL, vol. 19, 2001, pages 3635 - 3648
- AZZOLA M.F. ET AL., CANCER, vol. 97, 2003, pages 1488 - 1498
- KONONEN, J. ET AL., NAT MED, vol. 4, 1998, pages 844 - 847
- SMOLLE, J. ET AL., AM J DERMATOPATHOL, vol. 11, 1989, pages 301 - 307
- RIEGER, E. ET AL., J CUTAN PATHOL, vol. 20, 1993, pages 229 - 236
- KALEEM, Z. ET AL., MOD PATHOL, vol. 13, 2000, pages 217 - 222
- FULLEN, D.R. ET AL., J CUTAN PATHOL, vol. 28, 2001, pages 393 - 399
- BUSAM, KJ. ET AL., AM J SURG PATHOL, vol. 22, 1998, pages 976 - 982
- KUCHER, C. ET AL., AM J DERMATOPATHOL, vol. 26, 2004, pages 452 - 457
- HAQQ C. ET AL., PROC NATL ACAD SCI USA, vol. 102, 2005, pages 6092 - 6097
- KONONEN J ET AL., NAT MED, vol. 4, 1998, pages 844 - 7
- KASHANI-SABET M ET AL., J CLIN ONCOL, vol. 22, 2004, pages 617 - 23
- SAGEBIEL R.W., J INVEST DERMATOL, vol. 100, 1993, pages 322S - 325S
- HAQQ C. ET AL., PROC NATL ACAD SCI USA, vol. 102, 2005, pages 6092 - 7
- TROXEL D.B., AM J SURG PATHOL, vol. 27, 2003, pages 1278 - 83
- BUSAM K.J. ET AL., AM J SURG PATHOL, vol. 22, 1998, pages 976 - 82
- FULLEN D.R. ET AL., J CUTAN PATHOL, vol. 28, 2001, pages 393 - 9
- KUCHER C. ET AL., AM J DERMATOPATHOL, vol. 26, 2004, pages 452 - 7

#### Citation (search report)

- [XI] WO 9857982 A2 19981223 - US HEALTH [US], et al
- [X] RANGEL J ET AL: "NCOA3: A molecular prognostic marker for melanoma", EUROPEAN JOURNAL OF CANCER AND CLINICAL ONCOLOGY; 2006 ASCO ANNUAL MEETING PROCEEDINGS PART I, PERGAMON PRESS LTD, vol. 24, no. 18S, 20 June 2006 (2006-06-20), XP002690144, ISSN: 0277-5379

- [XJ] R.-C. WU ET AL: "Regulation of SRC-3 (pCIP/ACTR/AIB-1/RAC-3/TRAM-1) Coactivator Activity by I B Kinase", MOLECULAR AND CELLULAR BIOLOGY, vol. 22, no. 10, 15 May 2002 (2002-05-15), pages 3549 - 3561, XP055086467, ISSN: 0270-7306, DOI: 10.1128/ MCB.22.10.3549-3561.2002
- [XP] JAVIER RANGEL ET AL: "Prognostic Significance of Nuclear Receptor Coactivator-3 Overexpression in Primary Cutaneous Melanoma", JOURNAL OF CLINICAL ONCOLOGY, AMERICAN SOCIETY OF CLINICAL ONCOLOGY, US, vol. 24, no. 28, 1 October 2006 (2006-10-01), pages 4565 - 4569, XP002633127, ISSN: 0732-183X, DOI: 10.1200/JCO.2006.07.3833
- [A] HAQQ CHRISTOPHER ET AL: "The gene expression signatures of melanoma progression", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 102, no. 17, April 2005 (2005-04-01), pages 6092 - 6097, XP002562661, ISSN: 0027-8424
- [A] BARKS J H ET AL: "INCREASED CHROMOSOME 20 COPY NUMBER DETECTED BY FLUORESCENCE IN SITU HYBRIDIZATION (FISH) IN MALIGNANT MELANOMA", GENES, CHROMOSOMES & CANCER, XX, XX, vol. 19, 1 January 1997 (1997-01-01), pages 278 - 285, XP008034970, DOI: 10.1002/(SICI)1098-2264(199708)19:4<278::AID-GCC11>3.0.CO;2-C
- [A] ANZICK S L ET AL: "AIB1, a steroid receptor coactivator amplified in breast and ovarian cancer", SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, WASHINGTON, DC; US, vol. 277, no. 5328, 15 August 1997 (1997-08-15), pages 965 - 968, XP002088093, ISSN: 0036-8075, DOI: 10.1126/SCIENCE.277.5328.965
- [A] CHEN ZHAO ET AL: "Elevated expression levels ofNCOA3, TOP1, andTFAP2C in breast tumors as predictors of poor prognosis", CANCER, vol. 98, no. 1, 1 July 2003 (2003-07-01), pages 18 - 23, XP055086587, ISSN: 0008-543X, DOI: 10.1002/cncr.11482
- [A] KASHANI-SABET M ET AL: "Identification of gene function and functional pathways by systemic plasmid-based ribozyme targeting in adult mice", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES - PNAS, NATIONAL ACADEMY OF SCIENCES, US, vol. 99, no. 6, 19 March 2002 (2002-03-19), pages 3878 - 3883, XP002990522, ISSN: 0027-8424, DOI: 10.1073/PNAS.002025599
- [A] TORABIAN S ET AL: "Biomarkers for melanoma", CURRENT OPINION IN ONCOLOGY, CURRENT SCIENCE LTD, US, vol. 17, no. 2, 1 March 2005 (2005-03-01), pages 167 - 171, XP009088694, ISSN: 1040-8746, DOI: 10.1097/01.CCO.0000154039.07466.5D
- [A] CARLSON J A ET AL: "Molecular diagnostics in melanoma", JOURNAL OF THE AMERICAN ACADEMY OF DERMATOLOGY, C.V. MOSBY, ST. LOUIS, MO, US, vol. 52, no. 5, 1 May 2005 (2005-05-01), pages 743 - 775, XP004916342, ISSN: 0190-9622
- [T] M. KASHANI-SABET ET AL: "A Multimarker Prognostic Assay for Primary Cutaneous Melanoma", CLINICAL CANCER RESEARCH, vol. 15, no. 22, 3 November 2009 (2009-11-03), pages 6987 - 6992, XP055086031, ISSN: 1078-0432, DOI: 10.1158/1078-0432.CCR-09-1777
- [T] KASHANI-SABET MOHAMMED ET AL: "A multi-marker assay to distinguish malignant melanomas from benign nevi", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, vol. 106, no. 15, April 2009 (2009-04-01), pages 6268 - 6272, XP002562659, ISSN: 0027-8424

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